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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,974	12/11/2001	Ming-Chang Liu	80398.P467	6368

7590 06/13/2005
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EXAMINER

SENI, BEHROOZ M

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/014,974	Applicant(s) LIU ET AL.	
	Examiner Behrooz Senfi	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/27/2005, fwd4/5/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-13, 18, 19 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 4-7, 14-17, 20-23, 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 11, 18 and 24 - 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolenski (US 6,058,140) in view of Iwasaki et al (US 5,892,550).

Regarding claims 1 and 24, Smolenski '140 teaches "a method for identifying Repeated fields in a video sequence" (i.e. fig. 7, abstract), and "determining the first set and second set of motion vectors from input video frames" (figs. 4a – 4b and fig. 7, motion compensation unit, col. 4, lines 24 - 33), and "identifying a repeated field by comparing the motion vectors to a threshold" (i.e. fig. 6, 605, col. 4, lines 1 – 18 and lines 40 – 51). Smolenski '140 compares motion vectors to a threshold, to identify a repeated field. But does not explicitly show comparing a "ratio of the first set and second set of MVs" to a threshold. However, the above features are well known and used in the prior art of the record as evidenced by Iwasaki '550 (i.e. col. 15, lines 41 – 45).

Therefore taking the combined teaching of Smolenski '140 and Iwasaki '550 as a whole, it would have been obvious to one skill in the art at the time of the invention was made to modify the compression technology of Smolenski '140 for identifying and removing the redundant/repeated video fields by comparing a ratio of the motion vectors to a threshold as taught/suggested by Iwasaki '550, to more correctly/accurately detect and

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remove the repeated/duplicate fields. Since Iwasaki '550 clearly teaches comparing a threshold with the ratio between inter-frame correlation of the first field and the second field to correctly/accurately detect and remove the repeated fields. Motion vectors are derived from inter-frame differences, which in effect is an inter-frame correlation.

Regarding claims 2 – 3 and 25, combination of Smolenski '140 and Iwasaki '550 teach, "first set of motion vectors is between a first field of the first frame and a first field of the second frame and the second set of motion vectors is between a second field of the first frame and a second field of the second frame" (video frames comprises of two video fields, and the motion vectors are between the video fields, of the first field of the first frame and the first field of the second frame and so on, col. 3, lines 7+, col. 4, lines 20 - 33).

Regarding claim 11, the limitations claimed are substantially similar to claim 1, therefore the grounds for rejecting claim 1 also applies here.

Regarding claim 18, the limitations claimed are substantially similar to claim 1, and are computer program instructions, when executed by a processor cause the processor to perform method of claim 1, therefore the ground for rejecting claim 1 also applies here. Since 3:2 pull-down process illustrated in fig. 7, is computer implemented and the software or programs to carry out the instructions would have been necessitated by the system.

3. Claims 8 – 10, 12 – 13, 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolenski '140 and Iwasaki '550 as applied to claims 1 – 3, 18 and 24 – 25 above, further in view of Rao et al (US 6,041,142).

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Regarding claim 9, combination of Smolenski '140 and Iwasaki '550 teaches, "identifying repeated fields in a video sequence and determining set of motion vectors from input video frames" as discussed above, in claim 1. Combination of Smolenski '140 and Iwasaki '550 fails to explicitly teach "replacing the repeated field with a reference to a field from which the repeated field is repeated". However, such features are well known and used in the prior art of the record as evidenced by Rao '142 (i.e. abstract, lines 20 – 23, col. 7, lines 8 – 12) wherein Rao '142 teaches dropping repeated fields and replacing the fields with other field/reference to improve the encoding efficiency. Taking the combined teaching of Smolenski '140 and Iwasaki '550 and Rao '142 as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to drop the repeated field and replace that with identical fields (reference field) as taught by Rao, which would improve the encoding efficiency of the video data stream (col. 7, lines 10 – 12 of Rao).

Regarding claims 8 and 10, combination of Smolenski '140 and Iwasaki '550 and Rao '142 teach, "first threshold is a heuristically determined value" (i.e. figs. 8b – 8c, col. 8, lines 1 – 11), and "averaging the repeated field" (i.e. col. 64, lines 61 – 66 of Rao).

Regarding claims 12 – 13, 19 and 27, the limitations as claimed are substantially similar to claims 9 – 10, and have been analyzed and rejected with respect to claims 9 – 10 above.

Allowable Subject Matter

4. Claims 4 – 7, 14 – 17 and 20 – 23 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571)272-7339**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mehrdad Dastouri** can be reached on **(571)272-7418**.

Any response to this action should be mailed to:


Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. M. S. 

6/5/2005


VU LE
PRIMARY EXAMINER